STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.:	MO-0107701
Owner:	U.S. Department of Energy (USDOE)
Owner's Address:	7295 Highway 94 South, Weldon Spring, MO 63304
Continuing Authority:	Same as above
Continuing Authority's Address:	Same as above
Facility Name:	USDOE, Weldon Spring Chemical Plant
Facility Address:	7295 Highway 94 South, Weldon Spring, MO 63304
Legal Description:	All or parts of Sec. 31 projected, T46N, R3E, St. Charles County & SW ¼, NW ¼, Sec. 8, T45N, R3E, St. Charles County
Receiving Stream & Basin:	See Page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See Page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

July 14, 2000
Effective Date

March 5, 2004
Revised

Stephen M. Mahfood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

July 13, 2005
Expiration Date

Mohamad Alhalabi, P.E., Director, St. Louis Regional Office

MO 780-0041 (10-93)

FACILITY DESCRIPTION(continued)

Outfalls #001, #002 #003, #004, and #005 – These outfalls have been eliminated. Tributary areas have been stabilized.

Outfall #006 – this outfall is now permitted by State Operating Permit No. MO-0129917. (Lindenwood University)

Outfall #007 - Discharge of treated wastewater from personnel and equipment decontamination wastewaters, leachate from the disposal cell and contaminated storm water runoff from the disposal cell and other miscellaneous waters generated during remediation. One physical/chemical treatment system is provided.
Design average flow is 0.432 million gallons per day.

Outfall #008 – Outfall has been eliminated. Area is stabilized.

Outfall #009 – Outfall has been eliminated. Area is stabilized.

RECEIVING STREAMS & BASINS

Outfall #007 - Missouri River via pipeline (Missouri River and Eastern Tributaries Basin) (10300200-10-00)(P)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #007 (Note 1)						
Flow	MGD	*		*	once/week****	24 hr. total
Chemical Oxygen Demand	mg/L	90		60	once/week****	grab
Total Suspended Solids	mg/L	50		30	once/week****	grab
pH – Units	SU	***		***	once/week****	grab
Arsenic, Total Recoverable	mg/L	0.20		*	once/week****	grab
Aluminum, Total Recoverable	mg/L	7.5		*	once/week****	grab
Chromium, Total Recoverable	mg/L	0.40		*	once/week****	grab
Lead, Total Recoverable	mg/L	0.20		*	once/week****	grab
Manganese, Total Recoverable	mg/L	0.50		*	once/week****	grab
Mercury, Total Recoverable	mg/L	0.005		*	once/week****	grab
Selenium, Total Recoverable	mg/L	0.05		*	once/week****	grab
Cyanide (Amenable to chlorination)	µg/L	0.05		*	once/week****	grab
2-4 Dinitrotoluene	µg/L	1.1		*	once/week****	grab
Fluoride, Total	mg/L	12		*	once/week****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2004. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 & August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #007 (Note 1) (continued)						
Nitrate and Nitrite as N	mg/L	100		*	once/week****	grab
Sulfate as SO_4	mg/L	1000		*	once/week****	grab
Chloride	mg/L	*		*	once/week****	grab
Gross Alpha Activity	pCi/L	*		*	once/week****	grab
Gross Beta Activity	pCi/L	*		*	once/week****	grab
Uranium, Total Recoverable (Note 2)	mg/L	*		*	once/week****	grab
Radium-226	pCi/L	*		*	once/month	grab
Radium-228	pCi/L	*		*	once/month	grab
Thorium-230	pCi/L	*		*	once/month	grab
Thorium-232	pCi/L	*		*	once/month	grab
Whole Effluent Toxicity (WET) Test	% Survival	See Special Conditions			once/quarter**	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY, THE FIRST REPORT IS DUE July 28, 2004.						
Priority Pollutants (Note 3)	mg/L	*		*	once/year	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2004. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 & August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** Once per quarter in the months of January, April, July and October.

*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

**** Not to exceed once/batch.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 1 - The first quarterly report due date for this reissued permit is based on a complete calendar quarter monitoring period. Monitoring shall be reported once per quarter for the entire life of the permit. The permittee is still responsible for reporting for the preceding calendar quarter under the previous permit.
Note 2 - The design of the treatment plant is based on achieving an average discharge of 30 pCi/L Uranium with the maximum never to exceed 100 pCi/L.
Note 3 - Monitoring shall be conducted for the priority pollutants listed under 40 CFR 122.21, Appendix D, Tables II and III.

C. SPECIAL CONDITIONS

1. This permit may be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2) (C), and (D), 304(b)(2) and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

   (a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
   (b) Controls any pollutant not limited in the permit.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

2. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:

   a. That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 ug/L);
      (2) Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.

   b. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

3. Samples shall be representative of monitoring period discharges and if any discharge occurs during the monitoring period at least one sample per outfall must be collected and analyzed. (ANo Discharge≅ shall be used only to indicate no releases during the entire reporting period).

4. This permit may be reopened and modified or alternatively revoked and reissued, to incorporate new or modified effluent limitations or other conditions, if the result of a wasteload allocation study, toxicity test, or other information indicates changes are necessary to ensure compliance with Missouri's Water Quality Standards.

5. Permittee shall comply with the requirements of 10 CSR 20-6.010(4)(D) regarding construction permits. A construction permit will be issued after approval of the engineering submittals. As-built plans and specifications will be provided to the Department upon completion of construction.

C. SPECIAL CONDITIONS (continued)

6. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities

(a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.

7. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

8. Report as no-discharge when a discharge does not occur during the report period.

9. There shall be no release of polychlorinated biphenyl compounds (PCBs) to waters of the state at or above the level of quantification currently defined as 0.5 ug/L or 0.5 ppb.

10. Discharge of wastewater from this facility must not alone or in combination with other sources cause the receiving stream to violate the following:

(a) Water temperatures and temperature differentials specified in Missouri Water Quality Standards shall be met.

11. Any pesticide discharge from any point source shall comply with the requirements of Federal Insecticide, Fungicide and Rodenticide Act, as amended (7 U.S.C. 136 et. seq.) and the use of such pesticides shall be in a manner consistent with its label.

12. Except for any untreated overflow from facilities designed, constructed and operated to treat the volume of material storage runoff and construction runoff which is associated with a 10-year, 24-hour rainfall event; discharges resulting from material storage runoff and construction runoff shall comply with the following limitations:

(a) Total suspended solids shall not exceed 50 mg/l at any time.
(b) The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units at any time.

13. Copies of the quarterly monitoring reports will be available for public review at the Weldon Spring site and sent to the St. Louis Regional Office where they will also be available for public review.

14. All outfalls must be clearly marked in the field.

15. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#007	10%	QUARTERLY	Grab	January, April, July, & October

a. Test Schedule and Follow-Up Requirements

(1) Perform a single-dilution test in the months and at the frequency specified above.

If the test passes the effluent limit do not repeat test until the next test period. Submit results with the annual report.
If the test fails the effluent limit a multiple dilution test shall be performed within 30 days, and biweekly thereafter until one of the following conditions are met:

(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

C. SPECIAL CONDITIONS (continued)

15. Whole Effluent Toxicity (WET) tests (continued)

a. Test Schedule and Follow-Up Requirements (continued)

(2) The permittee shall submit a summary of all test results for the test series to the Planning Section of the WPCP, DNR, Box 176, Jefferson City, MO within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in part b.(1) will be required during this period.

(5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of results.

(6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

b. PASS/FAIL procedure and effluent limitations

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(2) To pass a multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,

(b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is considered an effluent limit violation.

C. SPECIAL CONDITIONS (continued)

15. Whole Effluent Toxicity (WET) tests (continued)

c. Test Conditions

(1) Test species: Ceriodaphnia dubia and fathead minnows, Pimephales promelas. Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.

(2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(3) When dilutions are required, upstream receiving stream water will be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used. Procedures for generating reconstituted water will be supplied by the Department of Natural Resources (DNR).

(4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after collection.

(5) Single-dilution tests will be run with:

(a) Effluent at the AEC concentration;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(6) Multiple-dilution tests will be run with:

(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC.
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at p# 0.05)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at p# 0.05)
Test Acceptability criterion:	90% or greater survival in controls